

## REPAIR OF INJURIES TO THE SKULL BY PERFORATED PLATES.

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HEAD injuries in the war are so numerous and so serious in their sequelæ that any means of minimizing their ill effects must be worthy of consideration. For some time past I have been in the habit of repairing gaps in the skull by the use of very thin perforated silver plates.

The silver is rolled out a little thinner than an ordinary visiting card, and is then punched with holes one-eighth of an inch in diameter, as close together as possible. This has the following advantages:—

1. Being very thin the plate can be readily adapted to the convexity of the skull.

2. The perforations have the advantages that they lighten the plate, they admit of the escape of blood or other fluid, so as to avoid compression by accumulation between the plate and the dura or brain, and they provide a simple means of fixing the plate in position.

**Technique of Operation.**—The plate, which can be cut to any required size by strong scissors, is applied as follows:—

1. A large flap of scalp is turned down.

2. The opening in the skull is explored, any foreign body is removed, adhesions are freed, and bleeding is arrested.

3. The periosteum is now carefully raised from the skull for about half an inch all round the gap.

4. The plate, cut the necessary size and shape (half an inch in diameter larger than the opening it is desired to close), is now slipped under the reflected periosteum and fixed in position by a series of catgut sutures which, by the aid of a fully-curved needle, are carried through the periosteum and out through any of the perforations in the plate which are most convenient. In this way the plate is securely fixed in position and cannot slip. The scalp flap is now sutured in position, and a drainage tube inserted at the most dependent angle for twenty-four hours—otherwise a hæmatoma is very likely to form.

Needless to say the most rigid asepsis must be observed.

The following case illustrates the benefits of this operation.—

### Bullet Wound over Left Motor Area.

I. O. R., age 20, was wounded August 26, 1914. The bullet, which was found on the cortex of the brain, was removed at a French hospital. His right side at that time was completely paralyzed. He gradually improved, and at the end of fifteen weeks was able to stand on the right leg, and ultimately regained almost complete power over his right side. In January, 1915, he began to have typical Jacksonian fits, commencing in the right foot and spreading to the right arm and face. When admitted to my ward in the Royal Victoria Hospital, May 5, 1915, he was having as many as fourteen fits per day. He had a crucial scar and a depression about the size of a penny over the left motor area.

When the scalp was reflected we found a cyst about the size of a hazel nut on the cortex of the brain, in the centre of which was a small irregular piece of bone. This was removed, and the gap in the skull repaired by a perforated plate as described above.

He had a fit the evening after operation, but has had no recurrence since that date. He is now (Dec. 16, 1916) at work and in good health, nineteen months after operation. A radiogram, taken by Dr. Rankin two months after operation, showed the plate still in position.

The largest plate I have yet applied was  $4\frac{1}{2}$  inches by  $2\frac{1}{2}$  inches. The patient, who was under the care of Dr. St. George in the County Infirmary, Lisburn, was injured by shrapnel on April 13, 1915. At the time of operation, Dec. 14, 1915, he was a confirmed epileptic. He had a large scar on the right fronto-parietal region, just in front of the motor area. This scar was depressed, adherent to the brain, pulsated freely, and was very tender.

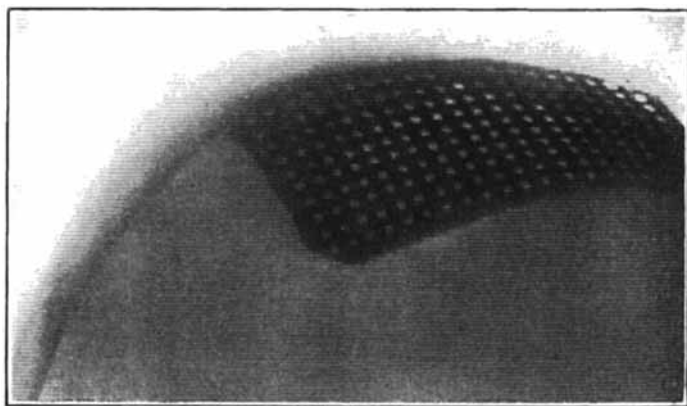


FIG. 12.—Radiogram showing perforated silver plate in position on the skull five months after operation.

With the assistance of Dr. St. George, the skull was plated on April 13, 1916. The accompanying radiogram, kindly taken by Dr. Rankin on Sept. 22, shows the plate in position five months after operation (*Fig. 12*). He still has some fits, but they are not nearly so frequent or so severe as before operation.

I have now operated on six of these cases. In every instance primary union was obtained, and marked relief followed the operation. None of the plates gave rise to any trouble.